WHAT is claimed is:

1. A semiconductor device having a trench gate structure, the semiconductor device comprising:

a laminate film comprised of a first silicon oxide film, silicon nitride film and a second silicon oxide film successively laminated in this order and formed on a side wall of a trench formed on one surface of a semiconductor substrate; and

polysilicon that is doped with boron and embedded in the trench through the laminate layer,

wherein the silicon nitride film in the laminate layer has a film thickness and film quality sufficient for suppressing boron from passing through the silicon nitride film and wherein the first silicon oxide film at the trench side in the laminate film has a film thickness that is greater than a film thickness of the second silicon oxide film at the polysilicon side.

2. A P-channel MOSFET comprising boron diffusion suppressing film at a gate side of a gate insulating film disposed between a boron-doped polysilicon gate and a channel region.

3. The P-channel MOSFET of claim 2, wherein the boron diffusion suppressing film comprises a laminate film that is comprised of a first silicon oxide film, silicon nitride film and a second silicon oxide film successively laminated in this order.

4. The P-channel MOSFET of claim 3, wherein a film thickness of the first silicon oxide film at a gate side is thinner then a film thickness of the second silicon oxide film at a channel side.

5. The P-channel MOSFET of claim 2, wherein the boron-doped polysilicon gate is a trench gate.

6. A method of manufacturing a semiconductor device having a trench gate structure, wherein the semiconductor devic e comprises a laminate film comprised of a first silicon oxide film, silicon nitride film and a second silicon oxide film laminated in this order and formed on a side wall of a trench formed on one surface of a semiconductor substrate, and polysilicon that is doped with boron and embedded in the trench through the laminate layer, the method comprising:

forming the trench on one surface of the semiconductor substrate;

forming the first silicon oxide film on the side wall of the trench so that a film thickness of the first silicon oxide film is larger than that of the second silicon oxide film at the polysilicon side;

forming the silicon nitride film on the first silicon oxide film so that the silicon nitride film has a film thickness and film quality under the condition of which boron can be suppressed from passing through the silicon nitride film; and

forming the second silicon oxide film on the silicon

nitride film so that the second silicon oxide film is smaller in thickness than the first silicon oxide film at the trench side, thereby forming the laminate film.

7. The method of claim 6, wherein the silicon nitride film is formed by CVD.